



2015 HypIRI Product Symposium

HypIRI:

Evolving the HypIRI Mission and Products: HypIRI Strategies to Meet Sustainable Land & Aquatic Imaging Needs

A Symposium Sponsored by NASA

*Goddard Space Flight Center-Building 34 ~Rooms W150, W120A/B
June 3-5, 2015*

Day One: Wednesday, June 3

8:00-8:30am **REGISTRATION CHECKIN-IN**

8:25-8:30am **Welcome [Betsy Middleton, GSFC]**

SESSION I-A: HypsIRI: The Fit Within the NASA Program [Chair, Betsy Middleton, GSFC]

Overview: HypsIRI accomplishments and plans

8:30-8:40am Program Status (**Woody Turner, HQ**)
8:40-9:00am NASA's Plan Forward for Missions (**Steve Neeck, NASA HQ**)
9:00-9:25am Status of Aircraft Program, the Dyson Spectrometer Concept, & The New HypsIRI Initiative on Volcanoes and Coral Reefs (**Rob Green, JPL**)
9:25-9:45am HypsIRI Thermal & ECOSTRESS (**Simon Hook, JPL**)
9:45-10:05am EO-1/Hyperion Status (**Betsy Middleton, GSFC**)
10:05-10:30am EcoSIS Database Overview (**Susan Ustin, UC Davis; Phil Townsend, Univ. of Wisc.; Justin Merz, UC Davis; Clayton Kingdon, Univ. of Wisc.**)

10:30-10:50am **COFFEE BREAK** **Group Picture**

SESSION I-B: SLI and other Relevant Activities

10:50-11:00am HQ Perspective on SLI (**Woody Turner, HQ**)
11:00-11:20am USGS Perspective on SLI (**Gregory Snyder, USGS**)
11:20-11:40pm CEOS/Land Product Validation Perspective (**Miguel Roman, GSFC**)
11:40-12:00pm Landsat-8 and Sentinel-2 (**Jeff Masek, GSFC**)
12:00-12:20pm PACE & GeoCAPE (**Antonio Mannino, GSFC**)
12:20-12:40pm EO-1/Hyperion's Role/Band Synthesis (**Guoqing Sun, GSFC/ESSIC & Steve Ungar, GSFC/USRA**)

12:40-1:40pm **LUNCH BREAK**

SESSION II-A: Efficient Onboard Processing and Product Distribution [Chair, Dan Mandl, GSFC]

1:40-2:00pm Fast Target Detection Framework for Onboard Processing of Multispectral and Hyperspectral Images (**Chiman Kwan, President, Applied Research LLC, Rockville, MD**)
2:00-2:20pm Small Unmanned Aircraft Systems (sUAS) for Mapping and Monitoring Smallholder Farms in Tanzania (**Jyoteshwar Nagol & Jan Dempewolf, UMD/Depart. Geographical Sciences**)
2:20-2:40pm A Schmidt-Dyson Imaging Spectrometer in a 12U CubeSat (**John Fisher, GSFC**)
2:40-3:00pm Next Generation UAV-Based Spectral Systems for Environmental Monitoring IPM Update (**Petya Campbell, UMBC & Dan Mandl, GSFC**)

3:00-3:20pm **COFFEE BREAK**

SESSION II-B: Efficient Onboard Processing and Product Distribution [Chair, Dan Mandl, GSFC]

3:20-3:40pm Rapid Onboard Co-registration for EO-1 and Landsat (**Pat Cappelaere, Vightel Inc. & Jacqueline LeMoigne-Stewart GSFC**)
3:40-4:00pm Rapid Data Product Deployment via Matsu Cloud/GeoSocial API/Dashboard Demo (**Matt Handy, GSFC**)
4:00-4:20pm Onboard Processing Metric Update for ChaiV640/Intelligent Payload Module Flights (**Vuong Ly, GSFC**)
4:20-4:40pm Intelligent Payload Module Update (**Dan Mandl, GSFC**)

4:40-5:10pm **Thermal Tutorial (Simon Hook, JPL)**

5:10-6:30pm **Poster Session Speed Talks (~2 min) & Ice Breaker**

6:30pm **ADJOURN, Day 1**

6:55pm **Holiday Inn Shuttle pick-up from GSFC Visitor Center Parking Lot**

8:00-8:30am REGISTRATION CHECK-IN

SESSION III-A: Science and Application Products [Chair, Petya Campbell, 15/10 min]

Science and Application Products-Assessment Validation

- 8:30-8:45am VSWIR L1 & L2 Processing Benchmarks: the HypsIRI Preparatory Airborne Campaign
(**David Thompson, JPL**)
- 8:45-9:00am Spectral Properties of Clouds (**David Thompson, JPL**)
- 9:00-9:15am Vegetation Function and ET (**Yun Yang, USDA**)
- 9:15-9:30am Estimation of GPP with fAPARchl and LAIchl (**Qingyuan Zhang, GSFC/USRA**)
- 9:30-9:45am Imaging Spectroscopy in California and the Upper Midwest (**Aditya Singh, Univ. of Wisc.**)
- 9:45-10:00am Assessing Soil Tillage Intensity (**Craig Daughtry, USDA**)
- 10:00-10:15am FLEX-US 2013 Airborne Campaign Summary: A collaboration between NASA, ESA, and the FLuorescence
Explorer Mission (**Larry Corp, GSFC/SSAI**)
- 10:15-10:25am Seasonal Dynamics in Biophysical Products in Hyperion Time Series (**Petya Campbell, UMBC**)
- 10:25-10:35am An Overflow-free Fixed-point Singular Value Decomposition Algorithm for Dimensionality Reduction of
Hyperspectral Images (**Anmol Mohanty, IITK**)

10:35-10:50am COFFEE BREAK

SESSION III-B: Science & Application Products: Models and Measurements

- 10:50-11:10am Linking Terrestrial Biosphere Models with Remote Sensing Measurements of Ecosystem
Composition, Structure & Function (**Paul Moorcroft, Harvard Univ.**)
- 11:10-11:30am Spectral Measurements and Field Data Collections, in Support of HypsIRI (**John Gamon, Univ. Alberta**)

11:30-12:30pm LUNCH BREAK

SESSION IV: Cal/Val & Characterizing Hot Targets [Chair, Steve Ungar]

Session IV-A: Daytime Calibration/Validation [Chair, Chris Neigh, 30/20 min]

- 12:30-1:00pm Overview of Spaceborne Spectroscopy for Cross Calibration (**Dennis Helder, SDSU**)
- 1:00-1:20pm VIIRS Bias Analysis with Hyperion (**Sirish Uprety, NOAA/STAR**)
- 1:20-1:40pm Multi-temporal cross-calibration of Terra MODIS and Landsat 7 ETM+ reflective solar band
(**Amit Angal, GSFC/SSAI**)
- 1:40-2:00pm Libya-4 PICS Surface Reflectance Time-Series and Hyperion Radiometric Stability (**Chris Neigh, GSFC**)

SESSION IV-B: Nighttime Hyperion Collections [Chair, Steve Ungar]

- 2:00-2:10pm An Overview of Nighttime Collections (**Steve Ungar, GSFC/USRA**)
- 2:10-2:20pm Advances in Wildfire Remote Sensing-Report back from TFRSAC (**Robert Sohlberg, UMD**)
- 2:20-2:40pm Observing Volcanic Eruptions with Earth-Observing 1: Smart Software, and the Volcano Sensor Web
(**Ashley Davies, Simon Hook, JPL**)
- 2:40-3:00pm Lunar Collections-Current & New EO-1 methods (**Steve Ungar, GSFC/USRA & Lawrence Ong, GSFC/SSAI**)
- 3:00-3:20pm Lunar Metrology for Satellite Instrument Calibrations (**Joel McCorkel, GSFC**)
- 3:20-3:40pm CLARREO ISS Pathfinder (**Kurt Thome, GSFC**)

3:40-4:00pm COFFEE BREAK

SESSION V: What is the Way Forward? [Chair, Fred Huemmrich]

- 4:00-4:20pm What's Next? Planning for the Future (**Lisa Callahan, GSFC**)
- 4:20-4:40pm ESAS2017: The 2017-2027 NRC Decadal Survey for Earth Science and Applications from Space
(**Art Charo, NRC**)
- 4:40-5:00pm Upcoming Decadal Survey: Imaging Spectroscopy Community (**SSG report**)
- 5:00-5:20pm Terrestrial Ecosystems Monitoring for the Next Decade:
Measurement Needs, Technologies and Approaches (**Forrest Hall, UMBC**)
- 5:20-5:50pm Discussion on inputs to 2017 Decadal Survey

5:50pm

ADJOURN, Day 2

6:00pm

Holiday Inn Shuttle Pick-up from GSFC Visitor Center Parking Lot

6:00-8:00pm

***Group Dinner at East Pearl Restaurant located at 7701 Greenbelt Rd, #101, Greenbelt, MD
(within walking distance to Holiday Inn)***

**HyspIRI Aquatic Studies Group (HASG) – 3rd Annual Aquatic Forum
Friday, June 5**

8:30-8:45am HASG Update and Forum Overview (**Kevin Turpie, UMBC – HASG Chair**)
8:45-9:00am PACE Update (**Jeremy Werdell, GSFC**)
9:00-9:15am GeoCAPE Update (**Antonio Mannino, GSFC**)

SESSION I – Atmospheric correction over coastal and inland waters: Challenges and priorities for implementing an operational atmospheric correction algorithm over coastal and inland waters.

9:15-9:35am Solar Irradiance Curves, Cirrus Contamination, and Sun Glint (**Bo-Cai Gao, NRL**)
9:35-9:55am Radiometric Calibration and Atmospheric Correction (**David Thompson, JPL**)
9:55-10:15am The Challenge of Absorbing Aerosols (**Olga Kalashnikova, JPL**)

10:15-10:30am COFFEE BREAK

10:30-10:50 Coastal Trace Gas Variability (**Maria Tzortiou, CUNY**)
10:50-11:10 Bayesian Approaches to Atmospheric Correction (**Robert Frouin, Scripps Institute of Oceanography**)
11:10-11:30 HICO On-line Atmospheric Correction over Coastal and Inland Waters – Lessons learned (**Curt Davis, OSU**)

11:30-12:00pm **DISCUSSION**

12:00-1:00pm LUNCH BREAK [Group Picture](#)

SESSION II – Hyperspectral data sets for algorithm development: Hyperspectral campaigns (past, present, and future) and what data products are or will be available for the development of hyperspectral remote sensing algorithms.

1:00-1:15pm Continued Access to Data from HICO (**Mary Kappus, NRL**)
1:15-1:30pm PACE Hyperspectral *in situ* Data Archive (**Cecile Rousseaux, GSFC/USRA**)
1:30-1:45pm PRISM Airborne Data (**Michelle Gierach, JPL**)
1:45-2:00pm Lake Erie Airborne Hyperspectral Campaign (**Dave Miller, NRL**)

2:00-2:15pm COFFEE BREAK

2:15-2:30pm Great Lakes Airborne Hyperspectral Campaign (**John Lekki, GRC**)
2:30-2:45pm Everglades and Florida Bay Airborne Campaign (**Carlos Del Castillo, GSFC**)
2:45-3:00pm HyspIRI Preparatory Airborne Campaign in California (**Raphe Kudela, UCSC; Liane Guild, ARC; Sherry Palacios, ARC/BAERI**)

3:00-3:30pm DISCUSSION

3:30pm ADJOURN

4:00pm *Holiday Inn Shuttle Pick-up from GSFC Visitor Center Parking Lot*